

REMARKS

Acknowledgement of Applicants' information disclosure statement filed on August 15, 2004, and the perfection of Applicants' claim for foreign priority are noted.

The comments regarding the specification are noted. However, Applicants did not attempt to incorporate subject matter by reference to the published article. Rather, the article was referenced in the specification as an example of known procedures for implementing crossing and mutation, as described in the specification. However, the reference will be submitted in an information disclosure statement for appropriate consideration by the Examiner.

Claims 1-15 have been rejected under 35 U.S.C. §101 as being drawn to non-statutory subject matter.

Claims 2, 7 and 11-15 have been cancelled without prejudice, and the remaining claims have been amended to define the invention using terminology that amply complies with statutory subject matter. It is therefore respectfully submitted that amended claims 1, 3-6 and 8-10 now define the invention with sufficient particularity to be patentable to Applicants.

Claims 1, 5, 6 and 10 have been rejected under 35 U.S.C. §102(b) as being anticipated by “An Updated Survey . . . ,” C.A. Coello, ACM Computing Surveys,” Vol. 32, No. 2, June 2000 (‘Coello’ herein). This rejection is respectfully traversed.

These claims as now amended variously recite “a plurality of objective functions are optimized . . . include at least one of a trailing-edge deviation angle, a pressure loss coefficient, a maximum slope of blade surface Mach number for pressure distribution, a lift/drag ratio, a blade load and incidence toughness that indicates operation stability of the blade,” and “selecting Pareto solutions from the optimization analysis on the basis of consideration of a trade-off relationship between the objective functions.”

In addition, the claims which depend from the independent claims of distinctive recitations are submitted to be allowable for that reason and for the additional limitations of “the incidence toughness is determined from first and second evaluation values of a parameter at first and second incident angles whose signs are, respectively, opposite to each other about an incident angle with respect to a design point on the blade,” or “the absolute values of the first and second incident angles are 10° or less” or “the Pareto optimization approach is a Multi-Objective Genetic Algorithm.”

These aspects of the claimed invention are not disclosed in Coello which discloses Pareto optimization, as the Examiner suggests. However, as this reference

is understood, there is no disclosure here of “incidence toughness that indicates operation stability of the blade,” in any manner resembling Applicants’ claimed subject matter. Nor is there understood to be any disclosure here of the additional recited limitations of the dependent claims 3-5 and 8-10. It is therefore respectfully submitted that claims 1, 3-6 and 8-10 are not anticipated by, but instead are patentably distinguishable over, Coello.

Claims 1, 3-6 and 8-10 have been rejected under 35 U.S. C. §103(a) as being unpatentable over Coello in view of “Aerodynamic and Aeroacoustic Optimization...”, B.R. Jones et al., AIAA 98-4811, 1998 (‘Jones’, herein). This rejection is respectfully traversed.

These claims are limited by the various recitations, as set forth in the above Remarks, which are not disclosed by Coello, as previously discussed herein.

Nor does Jones disclose Applicants’ claimed invention. Although this reference discloses certain aerodynamic properties or objectives to be minimized, as the Examiner suggests, there is no disclosure here of the incidence toughness, as claimed by the Applicants, that indicates the operation stability of the blade. Thus, merely combining Coello and Jones fails to establish even a *prima facie* basis including all recited steps from which a proper determination of obviousness can be made. It is therefore respectfully submitted that claims 1, 3-6 and 8-10 as amended are now patentably distinguishable over the cited art (including U.S. Patent

6,606,612; Van Veldhuizen et al. article; and Doenberger et al. article, listed but not applied).

Reconsideration and allowance of all claims are solicited.

Respectfully submitted,
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